**Lesson Sample: Addition and Subtraction Facts to 20**

**Introducing the Concept**

(Adapted From an Original Lesson Provided By *Houghton Mifflin Education Place* [Online].

Available: http://www.eduplace.com/math/mathsteps/1/a/index.html )

**Topic:**

**Mathematics: Number Sense: Creates and Uses Strategies for Solving Addition and Subtraction Basic Facts**

**Grade Level Grade 1**

**Example of State Standards**

1. The student understands and applies concepts and procedures of mathematics. *To meet this standard the student will:*

1.1 understands and applies concepts and procedures from number sense (number and numeration, computation, estimation)

2. The student uses mathematics to define and solve problems. *To meet this standard the student will*.

2.1 investigate situations by searching for patterns and exploring a variety of approaches

3. The student uses mathematical reasoning. *To meet this standard the student will:*

3.1 analyze information from a variety of sources; use models, known facts, patterns and relationships to validate thinking

**Prerequisite Skills**

Skill Considerations: Students Need to Be Able To:

1. Rote count to 10 and count objects to 10

2. Read and write numerals to 10

3. State/understand the concept of 0

4. Have background in reading and solving number fact sentences for addition through 10. (e.g., some experience in using math facts in literature and on flash cards)

Other Physical and Instructional Prerequisites Assumed by the Lesson

1. Student should be familiar with the snapping cubes and their use

2. Students will need to be able to respond to verbal questions

3. Students need to follow a visual (teacher) model showing number sentences represented by snapping cubes

**Objectives of the Lesson**

· Students will be able to state:

(a) addition and subtraction facts and

(b) related addition and subtraction facts from number families through sums of 10.

· Students will create and use strategies for solving addition and subtraction basic facts

· Students will use physical models to demonstrate the relationship between addition and subtraction

**Process**

**1. Materials**

**2. Procedures or Steps**

**Materials**: snap cubes and fact cards with varied number fact sentences (addition facts through 10 and subtraction facts through ten), chalkboard

**Procedures (Steps)**

1. At the beginning of the lesson begin by focusing on addition facts through 10.

2. Then explore corresponding subtraction facts.

3. Use a story first to show the concept of addition

4. Students should say the number fact sentences shown and show each number sentence using the snapping cubes.

5. Students will identify and state relationships between related addition and subtraction fact families.

6. Extend and reinforce practice of these skills in guided practice and fluency activities including games, flash cards, etc.

2. **Script Sample**:

**Say**: ***We are going to learn and practice a new skill today. It is called addition. I need some volunteers to help me act out a story.***

Choose 3 children to come to the front of the class. Have the class count the 3 children. Now ask 1 more child to come to the front of the room and count again with the class. (Teachers may wish to identify what strategy students used e.g., counting on)

**Ask*: What did we do?***

Children should say that one more child joined the group, or 1 more child was added to the group. Explain that "1" child was added and Write the number sentence on the board (3 + 1 = 4)

**Say**: ***Let's try it again. You act out the problem and show it with your cubes.***

Continue as above using numbers to 9 with 1 child joining the group. (You should have several examples and present them randomly)

**Ask*: Do you see a pattern here?***

Children should see and say that each time the number went up by 1.

**Say**: ***Now we are going to try something different.***

Repeat the activity, only this time call different numbers of children, but not adding more children.

**Ask**: ***What did you notice this time?***

Children should notice that if no children are added to the group, the number remains the same. (e.g., 3+0=3; 6+0=6)

**Say**: ***I would like you to put 2 cubes of 1 color together. Now put 1 cube of another color on your cube train.***

**Ask**: ***Now what does this show?***

That there are 2 cubes and 1 cube. 2 and 1 cube more are 3.Write 2 + 1 = 3 on the board.

**Say**: ***Now flip your cube train end to end and tell me what you see?***

Students say there is 1 cube and 2 more cubes. 1 and 2 more is 3. Write 1 + 2 = 3 on the board.

**Ask**: ***What did we do that is the same: What did we do that was different?***

Make sure that children recognize that the order of the addends doesn't matter and doesn't change the sum. Repeat this with other facts.

**Say**: If you know an addition fact, you can put it in a different order and you will have another fact. So, if you know 1 fact, you know 2 facts!

**Say**: ***Use your cubes. Put 5 cubes together. Now add 1 more cube***.

**Ask**: ***What number sentence did you show with your cubes?***

***5 + 1 = 6.*** Write it on the chalkboard.

**Ask**: ***How can we take away what we just did?***

Take away one cube.

**Ask*: What number sentence shows what we just did?***

6 - 1 = 5. Write the number sentence on the board. Tell children that these two facts are related. If they know an addition fact, they know a subtraction fact too.

**Ask**: ***What other addition fact can you make with 5 + 1 = 6?***

Elicit 1 + 5 = 6. Write it next to 5 + 1 = 6 on the board.

**Ask*: Do you think you can make another subtraction fact with 6, 1***

***and 5?***

Children should say they can make 6 - 5 = 1.

**Say**: ***These four facts are related and make a fact family. If you know one of these facts, you can figure out all the others in a family! Now can we make a fact family with 3, 5, and 8?***

Help student make and show the four sentences in the families.

Have students write the four number sentences in the family.

**Ask**: Now let's try another one. Make a cube train of 3 cubes. Now add 3 cubes of another color. What fact can you write. 3 + 3 = 6.

**Ask**: ***What happens if you remove 3 cubes from the 6 cubes you know have? What is the fact?***

Children should say they have 3 cubes remaining. 6 - 3 = 3, members in their family.

**Ask** students: What do you know about number families?

Extensions of the Lesson With Guided Practice May Involve a Number of Activities Including Worksheets, Games, Problem Solving Activities, etc.

Joseph:

A student with cognitive impairment, who is learning to count to 10, but has 1 to 1 correspondence. Joseph enjoys group work and peer attention.

Sarah:

A student, who is nonverbal, has cerebral palsy and also has a talking augmentative communication device.

Doug:

Doug is easily distracted and is always moving around them classroom. It is difficult for him to concentrate, especially when he is not directly involved in an activity.

How would you include the (3) students above in this lesson?

How would you assess the general education students in the class?

How would you assess Joseph, Sarah, and Doug?